

## CLAIMS

5 1. A mobile communication system supporting communication of data and comprising at least one base station connected to a switching arrangement over a connection and using a communication protocol for communication between a mobile station and the switching arrangement,

10 characterized by the connection between the base station and the switching arrangement supporting packet switched non-transparent communication of data transported as data frames, and means for detecting in the base station if data frames sent from the mobile station are correctly received over the air interface, means for sending only data frames detected as correctly received on to the switching arrangement using the packet switched connection between the base station and the switching arrangement.

15 2. The system of claim 1, characterized by the non-transparent communication of data transported as data frames being established on the uplink from the mobile station.

20 3. The system of claim 2, characterized by the means for detecting comprising means for calculating a frame checksum for a received data frame.

25 4. The system of claim 3, characterized by the quality of the radio transmission being detected in the base station to detect if a data frame is correctly received.

5. The system of claim 1,  
characterized by  
the switching arrangement being a Mobile Switching Center (MSC).

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6. The system of claim 1,  
characterized by  
the switching arrangement being a Base Station Controller (BSC),  
the base station being a Base Transceiver Station (BTS), packet  
10 switched communication of data being supported at least on the  
uplink between the Base Transceiver Station (BTS) and the Base  
Station Controller (BSC).

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7. The system of claim 6,  
characterized by  
the BSC including transcoding and adapting means for communication  
with an interworking function of a mobile switching center which  
comprises means for building frames for transportation of data,  
the transcoding and adapting means detecting if frames received  
from the mobile switching center contain data and sending only  
data frames on to the base station.

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8. The system of claim 1, 6 or 7,  
characterized by  
packet switched communication of data being supported between the  
base station and the switching arrangement on the downlink.

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9. A mobile communication system supporting communication of  
packet data and comprising at least one base station connected to  
a switching arrangement over a connection and using a  
communication protocol for communication between the mobile  
station and the switching arrangement,  
characterized by

the connection between the base station and the switching arrangement supporting packet switched non-transparent communication of data as data frames, means for detecting in the base station if data frames sent from the mobile station are correctly received over the air interface, and means for sending only data frames detected as correctly received on to the switching arrangement using the packet switched connection between the base station and the switching arrangement.

10. 10. The system of claim 9, characterized by packet switched communication being supported on the downlink from the switching arrangement to the base station.

11. 11. A method of transmitting data in a mobile communication system, the method comprising the steps of:

- establishing a non-transparent data connection between a mobile station and a switching arrangement, comprising an air interface between the mobile station and a base station and a packet switched connection between the base station and the switching arrangement;
- detecting in the base station if data frames sent from the mobile station are correctly received over the air interface; and
- sending only data frames detected as correctly received on to the switching arrangement using the packet switched connection between the base station and the switching arrangement.

30. 12. The method of claim 11, wherein the step of detecting comprises using a frame checksum defined in the non-transparent data protocol to establish if the data frames are correctly received.

13. The method of claim 11 or 12,  
further comprising the step of:

5 - performing radio quality measurements in the base station to establish if data frames are correctly received over the air interface from the mobile station.

14. The method of claim 12,  
further comprising the step of:

10 - detecting in the base station if a received time slot from the mobile station is symmetrical, and, only if the time slot is symmetrical, sending data packets over the packet switched connection to the switching arrangement.

15. The method of claim 11,  
further comprising the step of:

- implementing packet switched transmission on the downlink from the switching arrangement to the base station.

20 16. A method of transmitting data in a mobile communication system supporting communication of packet data, the method comprising the steps of:

25 - establishing a non-transparent data connection between a mobile station and a switching arrangement, comprising an air interface between the mobile station and a base station and a packet switched connection between the base station and the switching arrangement;

- detecting in the base station if data frames sent from the mobile station are correctly received over the air interface; and

30 - sending only data frames detected as correctly received on to the switching arrangement using the packet switched

connection between the base station and the switching arrangement.

17. The method of claim 16,  
5 wherein the step of detecting comprises using a frame checksum, defined in the non-transparent data protocol, to establish if the data frames are correctly received.

18. The method of claim 17,  
10 further comprising the step of:  
- implementing packet switched transmission on the downlink from the switching arrangement to the base station.

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